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Application of Modified Agile Methodology to Improve Usability of SAP ECC

by

Sharath Danda

A Starred Paper

Submitted to the Graduate Faculty of

St. Cloud State University

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for the Degree

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Abstract

Enterprise Resource Planning application has become the basic need for business in recent times. Most organizations have implemented ERP application despite the configuration and cost issues, but are not exploiting the true benefits of application. In this project the usability of SAP R/3 application (which is a leading ERP vendor in the market) was studied and how SAP Fiori implementation can overcome few of the drawbacks in application usability is explained. Implementation cost, Application Configuration, difficulty in use and poor training to employees are the major drawbacks of SAP R/3 application. SAP Fiori is a set of applications developed by SAP, which target the most frequently-used SAP transaction codes, workflow approvals and various other self-service reporting needs. SAP Fiori provides simple and friendly user experience across multiple devices like smartphones, tablets, and desktops. Project management in Implementation of customized SAP Fiori app for HCM module is discussed and the impact of new app on the organization is also analyzed as part of this project. Finally, feedback of the end user is collected to understand the usability of the new SAP Fiori HCM application.

Acknowledgements

This project would not have been possible without the help and encouragement from the professors of my committee Dr. Hiral Shah, Dr. Ben Baliga, and Dr. Kasi Balsy . I would like to convey my sincere regards to Dr. Hiral Shah, my committee chair, for guiding me in each and every step of preparation. The professors really helped me in gaining knowledge in every subject that was taken during my Master's in Engineering Management at St. Cloud State University. Also, I would like to thank Dr. Ben Baliga for reviewing the project document for presentation. The resources that were provided during the study at St. Cloud State University were tremendous. Finally, I would like to thank my friends and family for providing a great support in the fulfillment of my dream study at St. Cloud State University.

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Chapter I

INTRODUCTION

Introduction

Gloco Inc. is an American multinational technology company that provides multi-channel business communication solutions for customer and team engagement. Gloco currently services more than 95% of the Fortune 500 organizations at over 1 million customer locations worldwide with operations divided globally in 5 regions Asia Pacific; Caribbean, Latin America; Europe, Middle East, and Africa (MEA); and the United States and Canada.

This capstone project mainly focuses on the analysis of major drawbacks of SAP R/3 application globally and in specific at Gloco. To overcome user difficulty in using ERP application, new application SAP FIORI was implemented and its impact on the end users was analyzed through survey.

SAP Fiori is the new user experience (UX) for SAP software. It applies modern design principles for a completely reimagined user experience. SAP Fiori UX is the new face of SAP to business users in all lines of business (across various platforms like Desktops, tablets and smartphones) and deployment options. It provides optimal usability for simplified business interactions and ease of use.

SAP Fiori

SAP Fiori is a collection of applications which are designed to make business user's task simple and clear. All these applications are role based so they will save a lot of time for users compared to the traditional graphical user interface available till date. After researching routine task of various users across many organization, SAP has come up with design of apps which

does not require business users to memorize the traditional transaction codes, shortcuts to their tasks. Figure 1. SAP Fiori Apps shows various application modules for which SAP Fiori apps are available.

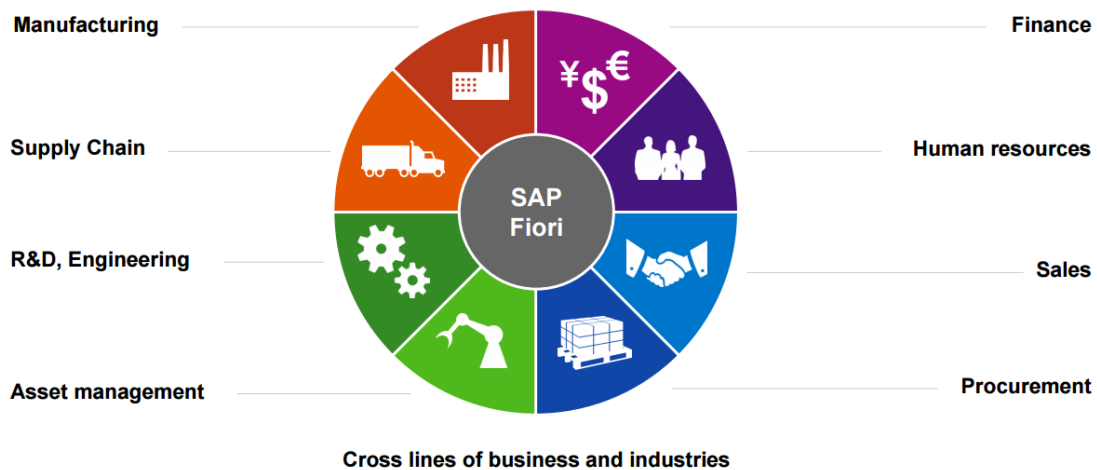


Figure 1. SAP Fiori Apps

Three major design guidelines SAP followed for the development of SAP Fiori applications are (a) role based, (b) responsive, and (c) simple.

a. Role based

As Shown in Figure 2, SAP Fiori apps are designed for business users, their needs and how they work. It helps business users to fetch the data they want at right time with ease. All these apps actually reflect the work of business user.

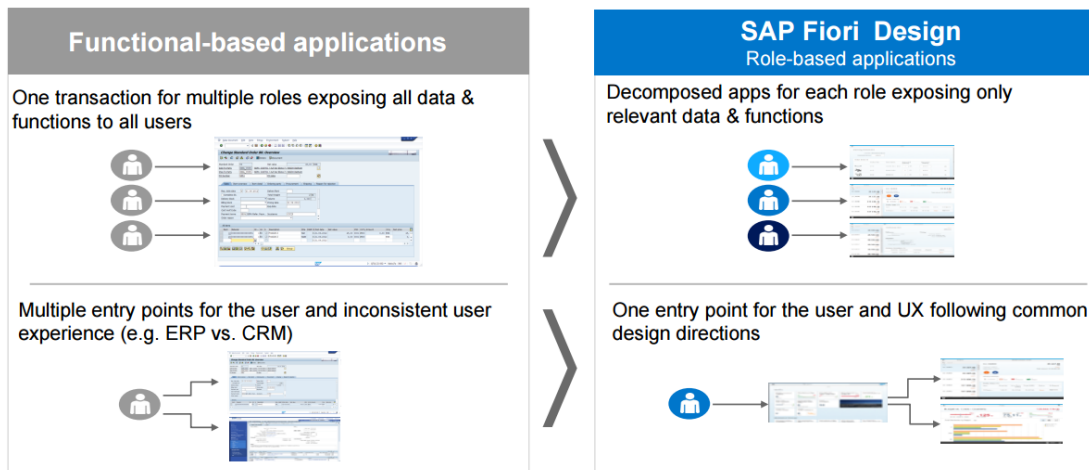


Figure 2. Role Based Apps in SAP Fiori

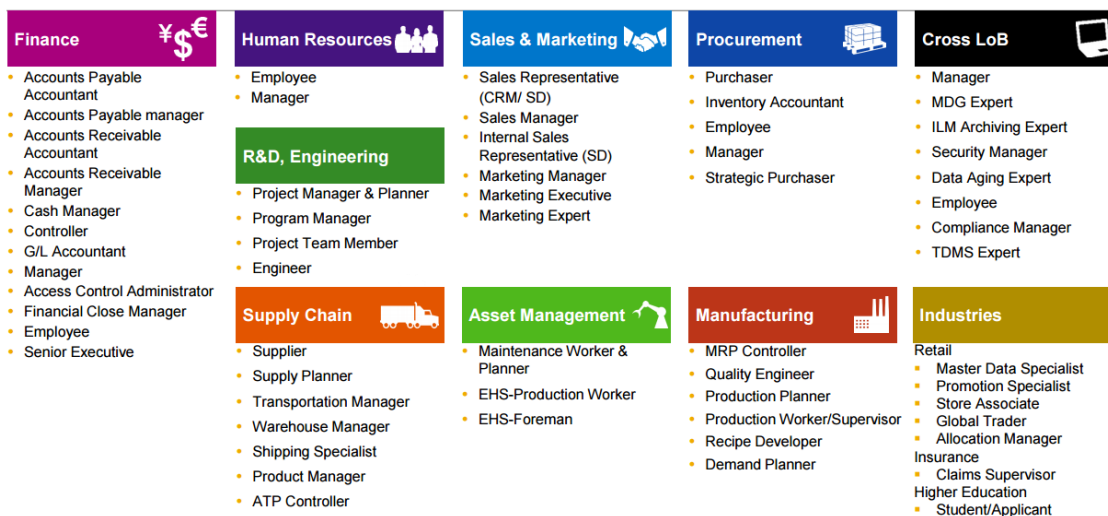


Figure 3. Various Roles by Module in SAP

b. Responsive

SAP Fiori apps are designed to be responsive compared to traditional GUI. As the apps are available to user over multiple platforms, business users can work where ever they need. Figure 4 shows various platforms where SAP Fiori can be used.

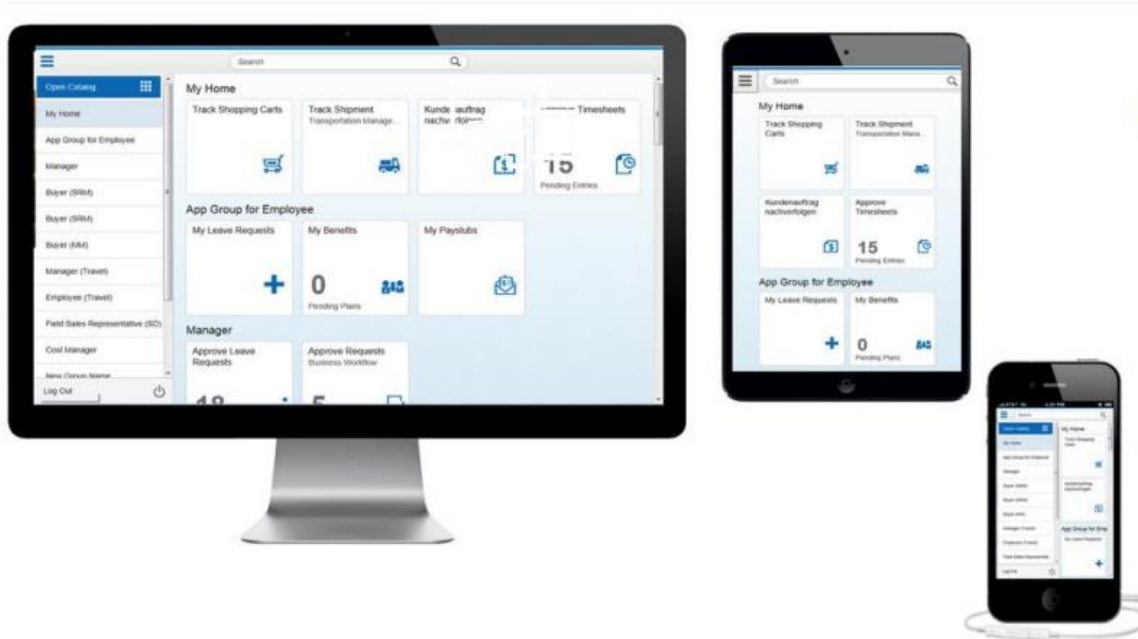


Figure 4. SAP Fiori Across Various Platforms

c. Simple

Business users can complete their job intuitively and quickly. All the screens and functions in the apps are simple to learn and use. They can also be modified to include their additional functions if any are missing in the delivered package.

SAP Fiori Application Demo

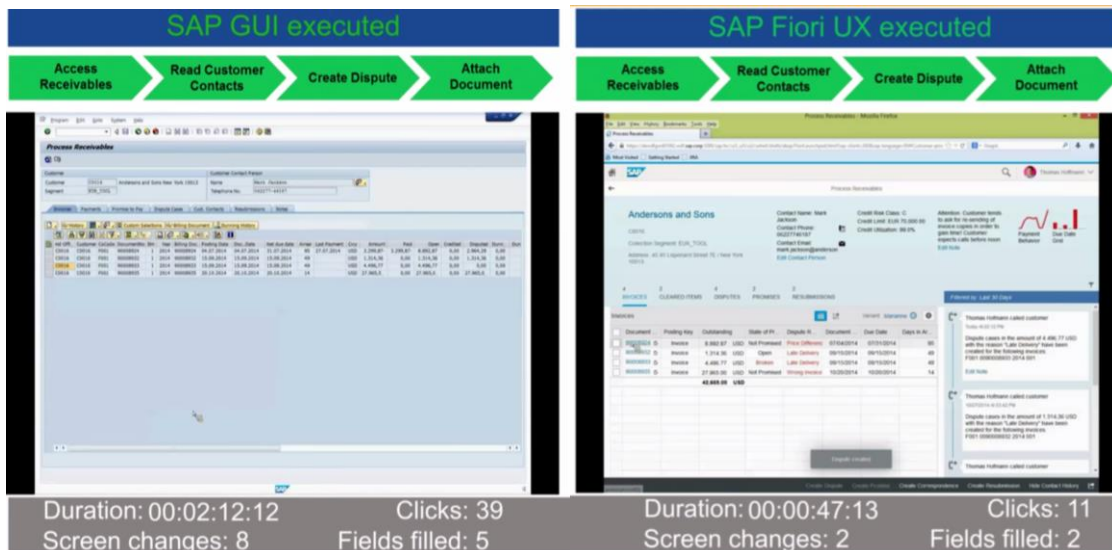
A simple Fiori app which is used for processing receivables is compared against the traditional SAP GUI. In Figure 5, comparison is shown between both with GUI on the left and Fiori on the right. SAP ERP end user was asked to perform a routine task twice, once using Process Receivables app on SAP Fiori and once using the traditional SAP GUI.

Business Process Involved: Receivables Management

Target user: Cash Collections Specialist

Both sessions were recorded for time taken to accomplish the activity, number of clicks required, number of fields filled and the number of screens changed. In this scenario, a cash collection specialist is required to call customers to collect overdue receivables. The cash collection specialist's work includes the following steps:

1. Get the list of customers who are overdue
2. He needs to sort the list by various factors like
 - a. Time overdue
 - b. Amount overdue
 - c. When the customer was last contacted
3. Call the customer and remind him of the payment due
4. While communicating with customer if he gets to know about any issue faced by customer, collection specialist has to open a dispute case and assign it to the right team in the organization. Any document related to the dispute is also attached here.



| SAP GUI | SAP Fiori UX |
|---------------------|-------------------|
| Duration: 2:12 mins | Duration: 47 secs |
| Clicks: 39 | Clicks: 11 |
| Screen changes: 8 | Screen changes: 2 |
| Fields filled: 5 | Fields filled: 2 |

64% reduction in duration
 71% reduction of clicks
 75% reduction in screen changes
 60% reduction of fields filled

Figure 5. Comparison between SAP GUI and SAP Fiori

Results of the SAP FIORI app were very remarkable. New user interface clearly shows a vast reduction in time taken to complete a routine task. If a detailed study has to be conducted on the total improvement in productivity of the business workforce, exact performance indexes of the applications can be calculated. There will be a minimum of 40% increase in the productivity of the users and with the latest user interfaces they tend to work with the data more effortlessly. With the usability of Fiori apps on mobile devices like smart phones and tablets, work gets much easier for business users and the productivity can also be increased.

The bottom line of the above scenario is SAP Fiori apps are more intuitive, which will help any organization improve the performance and productivity of their employees and can drastically reduce the cost of training users. With these new apps, users do not have to remember the transaction codes, shortcuts, etc. Role based applications will make their job much easier.

Problem Statement

SAP ERP application has the major push back from end users with regards to the difficulty in using the application. There were over 300,000 different screens in application which were not very user friendly and require extensive training sessions to make the end users of the application perform their daily routines. Moreover, the current R/3 application was not designed with the role of end users in mind but was generic to every user in the organization, which added more confusion and successfully intimidated end users in using the application.

Nature and Significance of the Problem

Among the many drawbacks of SAP R/3 application like recurring upgrades, complex pricing, poor user experience, rigidity in design etc., poor user experience has a good share in the list of projects labelled as failed SAP R/3 implementations. A very recent and perfect example of the importance of user experience in ERP applications was the scrapping of SAP ERP project at AVON after it received serious flak from its employees. This multinational cosmetic giant started the development of a new management order system in 2009 and it was materialized and was ready for release in late 2013. Once implemented, the new system was so complex to use that its employees started leaving the organization as they found it difficult to get accustomed to the new system. The number of employees who left the organization was so significant that Avon was forced to scrap the project which costed them over \$125M.

Objective of the Project

The main objective of the project was to study the usability of ERP application and analyze the outcome of the SAP Fiori implementation.

Objectives of the project are to (a) study the usability of SAP ERP application at Gloco Inc. and (b) limitation of difficulty in using the SAP ERP application to the end users through implementation of SAP Fiori.

Project Questions

The following questions will be answered at the end of the study.

1. What is the SAP ERP application usability index/score?
2. How can SAP Fiori implementation improve the usability of application?
3. What is the customer feedback on SAP Fiori HCM Apps?

Limitations of the Project

Various journals and technical columns were considered while studying the draw backs of the SAP ERP system and a survey was conducted with the users in Gloco Inc. This project had two different parts—one deals with the analysis of the current system usability and the other was the implementation of SAP Fiori which improves the user experience of the application. As far as the analysis of the current system is considered, limitations are as follows:

1. Analysis was not focused on understanding the technical glitches of the application.
2. As this was not a comparison of different ERP systems, the downsides of ERP system at this particular organization were not studied.

3. Method used for analysis of system usability cannot be guaranteed for 100% accuracy due to various factors involved such as improper answering from participants, generalized questions, and standardization of usability score.

Coming to the second part of the project, i.e., implementation of SAP Fiori, not all modules are migrated to Fiori. Only the HCM module was implemented and also it was available for users in United States only. After completely analyzing the benefits of the Fiori at this organization, implementation of Fiori for other modules and at other geographical parts will be decided.

Summary

This chapter briefly covered the salient features of this project like the objective of the project, how the draw backs of ERP application is studied, implementation of solution which resolves the major drawback of the ERP application and questions that will be answered at the end of the study. In the next chapter, background of the study is explained in details along with the literature related to this project.

Chapter II

BACKGROUND AND REVIEW OF LITERATURE

Introduction

This chapter briefly describes the background details and literature about the problem. It also focuses on the methodology that is implemented in this project and explains the type of methodology that is used with the help of graphical representation.

Background Related to the Problem

SAP is a leading enterprise software development corporation which has close to 300,000 customers across the globe. SAP ERP 6.0 is the Enterprise Resource Planning application released by SAP in 2006 by redesigning its previous product R/3. Since then, many versions have been released, which made the product robust by incorporating various key business functions. Even though the product is polished with every release there are few drawbacks which always haunted SAP and the customers who bought the product (Hamilton, 2003). Those drawbacks costs were huge to both buyer and seller and customers ended up scrapping the whole project and SAP ended up losing new customers. Gluco was one such customer who was on the verge of scrapping the current application before replacing it with a new product from another vendor.

Avon SAP Implementation Failure

People are accustomed to using the best user interface provided and best intuitive application in their day-to-day lives such as mobile banking and social networking. This led to increased expectations with the technology or applications at their workplace, but the major applications at organizations like ERP are still not very user friendly and are creating

disappointment and frustration at workplaces (Ferrell & Hartline, 2005; Hutt, 1993). In recent times, Avon faced the ire of its employees and marketing personal after the implementation of SAP ERP application. Users who were unable to get accustomed to this new application which gave them nightmares in the broad daylight, left the organization. The number of people who abandoned Avon was so significant that, Avon had to retire its new \$125 M investment.

Representatives who sell Avon products are not employees of Avon and they are either free-lancers or part time workers who need to pay for their materials and supplies from Avon and sell those products to customers (Berry, 1997). For people like those who earn a very little margin by selling Avon products, they expect the order placing system to be very user friendly and intuitive so that their job gets finished quickly and easily. However, they had trouble using the new system and getting accustomed to it was very time consuming. To place a simple order, they could not wait on line for 60 minutes to receive help from customer service. Frustration and disappointment escalated in the representatives and they stopped buying Avon products resulting in a huge dip in the product sales for Avon.

Avon understood the scale of the issue and tried to counter the negative consequences by introducing user training programs and guidelines; however, it was too late and did not help much. Avon then cancelled its previous plans to expand the SAP implementation throughout the world.

One of the independent sales leader working for Avon explained that the new SAP application had many glitches and caused a lot of confusion to the employees who were working with the application. As a result of this failed implementation, 300 independent sales representatives working for him left Avon and more than 15,000 people in total stopped placing

new orders from Avon. They were all people who made very little margin from Avon sales and make less than \$500 a month. They thought the new system was not the right one for their time. People at the corporate headquarters did not accept the fact that the new system was a failure and kept insisting that the application was working fine. A few executives even stated that the sales representatives are so dumb to use the new application.

SAP commented that its application was working as designed and did not cause any issues with other organizations which were using the same product for years. A representative from SAP also said that the SAP's role in application implementation was backend only and the organization should be responsible for training of the end users and issue related to them. This is the time where people are looking forward to well-designed systems and are impatient to understand and use complex applications. Functionality can be achieved in several ways but the route which provides better user experience and interface is the best one (Chen, 2001).

Literature Related to the Problem

Software usability is one aspect of human-computer interaction that can benefit from knowledge of the user and their tasks (Brooke, 1986). Frequent checks must be made to assess the usability of the application which will act as guideline for the management in planning their future roadmap and also helps developers of the application to plan their future enhancements. There are many ways to measure the user satisfaction with a software application. System Usability Scale (SUS) is a renowned method for measuring software usability and satisfaction.

The SUS method does not consume much time from the end user who participates in the survey and is also easy to compute the results of the survey (Bangor, Kortum, & Miller, 2008). Its reference in over 1300 publications and articles makes it a very reliable and industry standard

tool. Some of the noted benefits of SUS over other methods like Software Usability Measurement Inventory (SUMI) are that it is a very easy scale to administer the participants and can be tested on small group of participants and still provides reliable data to estimate the usability of the system. On the other hand, SUMI is also a very robust method to assess the usability of a software but is a lengthy process and requires more time and inputs from end user to measure the usability, which may result in decreased number of participants and also the answers to most of the questions might be unreliable.

The System Usability Scale (SUS) was developed by John Brooke in 1986 and was originally created to be used as a “quick and dirty” scale for administering after usability tests on systems like VT100 Terminal (“Green-Screen”) applications. SUS has since been tested on hardware, consumer software, websites, cell-phones, IVRs and even the yellow-pages. As shown in Figure 6, SUS has ten simple questions which question the overall view of the end users related to usability of the system. SUS can be either a 5- or 7-point Likert scale with options varying between strongly disagree to strongly agree. The list of questionnaire used in System Usability Scale is shown below. These 10 questions cover various dimensions of system usability like difficulty in using the application, support required to the participant to utilize the system completely and training provided or required to use the system. All these aspects help in validating the true usability of the system.

| | Strongly Disagree | | | | Strongly Agree |
|--|------------------------------|---|---|---|---------------------------|
| 1. I think that I would like to use this product frequently. | 1 | 2 | 3 | 4 | 5 |
| 2. I found the product unnecessarily complex. | 1 | 2 | 3 | 4 | 5 |
| 3. I thought the product was easy to use. | 1 | 2 | 3 | 4 | 5 |
| 4. I think that I would need the support of a technical person to be able to use this product. | 1 | 2 | 3 | 4 | 5 |
| 5. I found the various functions in the product were well integrated. | 1 | 2 | 3 | 4 | 5 |
| 6. I thought there was too much inconsistency in this product. | 1 | 2 | 3 | 4 | 5 |
| 7. I imagine that most people would learn to use this product very quickly. | 1 | 2 | 3 | 4 | 5 |
| 8. I found the product very awkward to use. | 1 | 2 | 3 | 4 | 5 |
| 9. I felt very confident using the product. | 1 | 2 | 3 | 4 | 5 |
| 10. I needed to learn a lot of things before I could get going with this product. | 1 | 2 | 3 | 4 | 5 |

Figure 6. SUS Questionnaire

Scoring SUS

SUS yields a single number representing a composite measure of the overall usability of the system being studied. Note that scores for individual items are not meaningful on their own.

To calculate the SUS score, first sum the score contributions from each item. Each item's score contribution will range from 0 to 4. For Items 1, 3, 5, 7, and 9, the score contribution is the scale position minus 1. For Items 2, 4, 6, 8, and 10, the contribution is 5 minus the scale position. Multiply the sum of the scores by 2.5 to obtain the overall value of SU. SUS scores have a range of 0 to 100.

Literature Related to the Methodology

Accelerated SAP (ASAP) methodology provides the roadmap for successful implementation of any SAP application (<https://scn.sap.com>). This methodology was developed for execution of projects under predefined budget and timeline. This methodology is not just limited to the huge projects like the implementation of ERP system but can also be helpful for the implementation of other SAP products like Business Warehouse, Business Objects, and Success Factors etc. The whole purpose of using ASAP methodology is to help organizations with implementation of applications in the most efficient way possible. It targets to use the resources and utilize the available time efficiently so that project is delivered successfully. Roadmap consists of five phases (a) Phase 1: Project Preparation, (b) Phase 2: Business Blueprint, (c) Phase 3: Realization; (d) Phase 4: Final Preparations, and (e) Phase 5: Go-Live and Support.

Phase 1: Project Preparation Phase. The first phase consists of gathering the information related to the application and resources required for the implementation. During this phase all the necessary components were put together and objectives are set. Milestones included in this phase are (a) setting up clear objectives, (b) building a team which comprises of all skills required for the implementation, and (c) obtaining support from stakeholders and corporate management.

The project objectives have to be clear and concise. There should be no vague objectives which will not only delay the implementation of project but can also lead to greater catastrophes. It is very important to have clear objectives, goals and plans architected before stating the project. Also the project management team and senior level management must have a good understanding to deliver the decisions quickly whenever required.

Phase 2: Business Blueprint. This phase of the project was designed by SAP to gather information related to organization business practice that is required for implementation of product. Information is usually collected with the help of questionnaire that help understand the business practice conducted by the company. Figure 7 shows the detailed deliverables and milestones of blueprint phase. Business Blueprint phase also emphasizes on the future plans of the company and those requirements are also gathered. Example questions used in the questionnaire are:

1. What information is required to place a sales order?
2. What information is captured in the Opportunity or a Quote Accelerated?

All the information gathered was placed in a database which served as the central reservoir for the blueprint. A standard questionnaire was available to collect the data and can also be customized according to the needs of the project. Customers were given the template and the information gathered was dumped in to this database which can be accessed by the whole team managing the project. There was another optional database which can also be used—issues database. This helps logging the issues identified during the business blueprint phase and can be clarified later with the concerned team in the company.

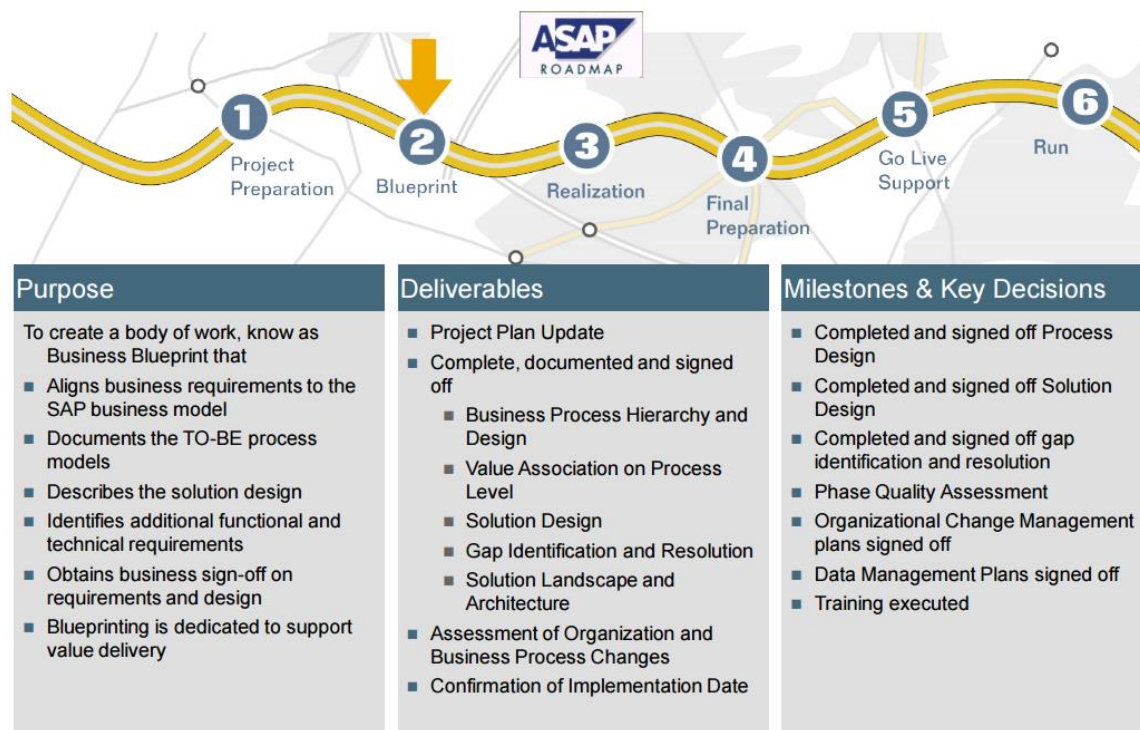


Figure 7. ASAP Methodology Road Map

Phase 3: Realization. By the end of the Business Blueprint phase, functional experts in the team had all the information required to design and architect the technical specifications of the project. In the realization phase there were two parts: (a) consulting team from SAP helps in configuring the baseline system also called the baseline configuration and (b) the project team fine tunes the system to meet with business requirements.

The consulting team completes the baseline configuration based on the information gathered in the business blueprint phase. But this information was not complete enough for the design of the system to meet the exact requirements of the company so the project team finishes the rest of the configuration. The fine tuning part is usually comprised of additional requirements given by the company apart from the standard requirements.

Configuration testing. As there are different departments in the company such as supply chain management, sales and distribution, finance, etc. all those are differentiated with the help of the consulting team. Each department follows different cycles related to business. There is a tool used for this process known as SAP IMG, which helps in configuring each system.

Phase 4: Final Preparation. During the final preparation phase of the project, all the functional and technical testing should be done and also training for the required personnel in the company should be done. During this phase, various tests were executed to ensure the reliability of the application after the moving to the production environment. Also, data migration tasks and data cleansing tasks were performed. Any old databases which are being replaced or being decommissioned should be connected with the SAP application and the data has to be copied over.

Both the testing teams functional and technical were required to make sure the application was delivering the expected results and working as designed. Various tests such as stress testing, peak load testing etc. were conducted to ensure the stability of the application. Also, various maintenance checks were conducted to make sure the application was working at optimum and did not miss any crucial parts. During the end of this phase, both the project management team and senior level management team gathered to discuss the go live strategy of the project. End user training documents and all other required technical or functional documentation was prepared by the teams and handed over to the business.

Phase-5: Go-live and Support. The go-live phase does not just include moving the current application into the production environment, it also includes the transition between the old system and new system. So a lot of preparation was required from both end users perspective

and the project team. All the things must be checked for consistency before moving the application to use of end users. Also during this phase other team has to be trained and prepared for the support of this application.

Summary

This chapter briefly covered the background and literature of the problem. It also described the methodology used and explained different phases of the ASAP process.

Chapter III

METHODOLOGY

Introduction

This chapter covers the design of the study and the methodology used for the project. It also covers the data collection, data analysis and timelines of the project.

Design of the Study

To determine the usability of the current ERP system, a SUS questionnaire was sent to over 110 active users of the system. Selection of end users was done in such a way that they were selected from all different modules of the system. SAP HCM, MM, SD, FI, and CO etc. are few example areas of the system from which end users had been selected. The SU scale is generally used after the respondent has had an opportunity to use the system being evaluated, but before any debriefing or discussion takes place (Kortum & Peres, 2014). There were no lengthy guidelines to be studied before answering the questions but end users were advised to follow the below two guidelines:

1. Respondent should record their immediate response to the question rather than thinking about it for a long time.
2. All the items should be answered.
3. If a respondent feels that they cannot answer the question, they should mark the center of the scale.

Data Collection

A questionnaire was sent through email to the end users and their responses were collected to determine the usability index of the system. The number of end users was categorized in the following pie chart (Figure 8) to show the count of end users from each module of the system.

Table 1

Number of Participants

| Module | Number of Participants |
|---------------|-------------------------------|
| SAP MM | 17 |
| SAP HCM | 23 |
| SAP SD | 21 |
| SAP FI, CO | 22 |
| SAP SCM | 20 |
| TOTAL | 103 |

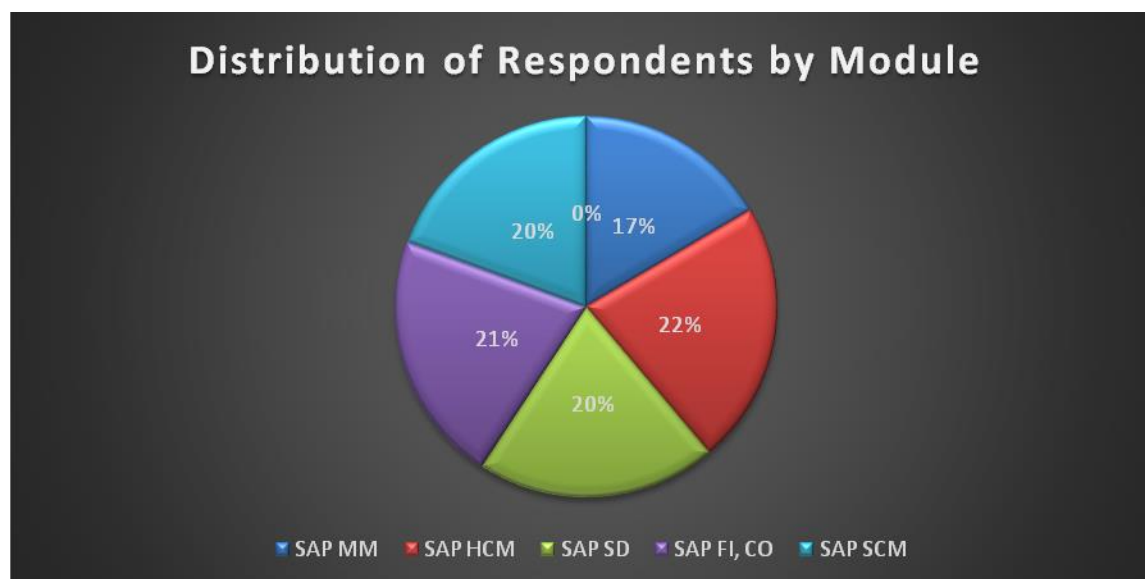


Figure 8. Distribution of Respondents by Modules

Data Analysis

Scores were entered into a spread sheet and individual scores were calculated and the average of the scores was calculated to determine the Usability index of the system. Following is one of the scoring sheets from users. All the users' scores were calculated independently and the average of those score was calculated to find out the overall usability index of the application. With the increase in the number of survey participants, accuracy of the usability score is also increased.

Table 2 shows a sample SUS score calculation. One of the users survey sheet is used to calculate the usability index. For Items 1, 3, 5, 7, and 9 the score contribution is the scale position minus 1. For this particular user, scores for odd numbered questions were 2, 4, 2, 2, and 2 respectively. So, SUS contribution for those questions will be 1, 3, 1, 1 and 1. For Items 2, 4, 6, 8 and 10 the contribution is 5 minus the scale position. In this case, score given by user for even numbered questions were 4, 4, 3, 3, and 3. So the SUS contribution for those questions is 1, 1, 2,

2, and 2. The final score is obtained by multiplying the sum of scores with 2.5. The sum of scores is $15 * 2.5 = 37.5$.

Table 2

SUS Scoring

| # | Question | User's Scale Position | SUS Contribution |
|-----------------------------|---|-----------------------|------------------|
| 1 | I think that I would like to use this product frequently: | 2 | 1 |
| 2 | I found the product unnecessarily complex: | 4 | 1 |
| 3 | I thought the product was easy to use: | 4 | 3 |
| 4 | I think that I would need the support of a technical person to be able to use this product: | 4 | 1 |
| 5 | I found the various functions in this product were well integrated: | 2 | 1 |
| 6 | I thought there was too much inconsistency in this product: | 3 | 2 |
| 7 | I would imagine that most people would learn to use this product very quickly: | 2 | 1 |
| 8 | I found the product very awkward to use: | 3 | 2 |
| 9 | I felt very confident using the product: | 2 | 1 |
| 10 | I needed to learn a lot of things before I could get going with this product: | 3 | 2 |
| Individual SUS Score | | | 37.5 |

Timeline

The project was first proposed in Spring 2015 but was budgeted and planned to start by May 2015. The user experience survey was conducted during the first week of March and analysis of the survey was finished by the end of April. A proposal and business requirement specifications was then prepared based on the survey and various other factors. Figure 9 and Table 3 show the detailed timeline of the project.

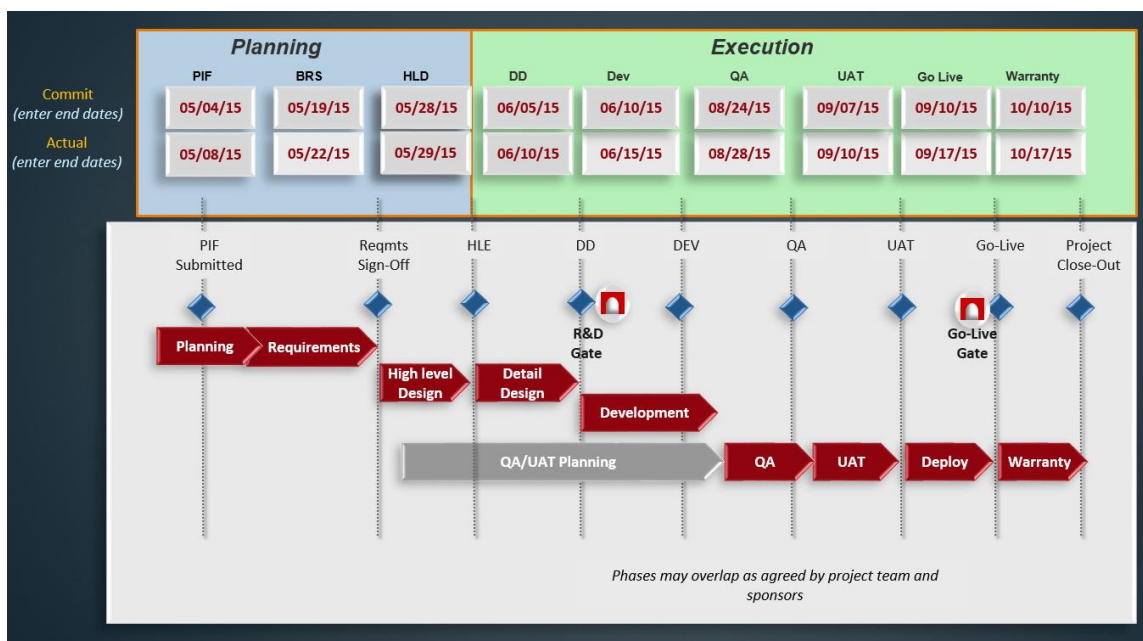


Figure 9. Timeline

Table 3

Timeline Table

| Activity | Timeline |
|---------------------------------------|--|
| Project Intake Form Submission | 04 th May, 2015 |
| Business Requirements Specification | 04 th May, 2015 – 22 nd May, 2015 |
| High Level Design Document | 22 nd May, 2015 – 29 th May, 2015 |
| Detailed Design Document | 22 nd May, 2015 – 10 th June, 2015 |
| Research and Development Gate Meeting | 10 th June, 2015 |
| Development | 10 th June, 2015 – 07 th Aug, 2015 |
| Quality Assurance Testing | 07 th Aug, 2015 – 28 th Aug, 2015 |
| User Acceptance Testing | 28 th Aug, 2015 – 10 th Sep, 2015 |
| Production Deployment / Go-Live | 17 th Sep, 2015 |
| Project Warranty | 17 th Sep, 2015 – 17 th Oct, 2015 |

Summary

This chapter briefly covered the basic principles like design of the project, how the data has been collected and analyzed, and finally the timeline of the project. The next chapter will deal with the brief details about the data presentation and analysis.

Chapter IV

DATA PRESENTATION AND ANALYSIS

Introduction

This chapter focuses on data representation and analysis of the reports generated through SAP Fiori apps. Overall SUS score for the application and SUS score for respective modules are presented and analyzed.

Detailed analysis on the layout of the apps and the customer satisfaction levels on the usage of SAP Fiori is also discussed. Comparison between the old HR application interface and the SAP Fiori app interface is done and the advantages and disadvantages are analyzed.

Data Presentation

Data from the questionnaire was collected and then segregated based on the module of the business users. Figures 10 through 15 show responses from users with respect to the module. As the even numbered questions and odd numbered questions were scored differently, graphs were also divided based on that.

Material Management (Total number of respondents: 17)

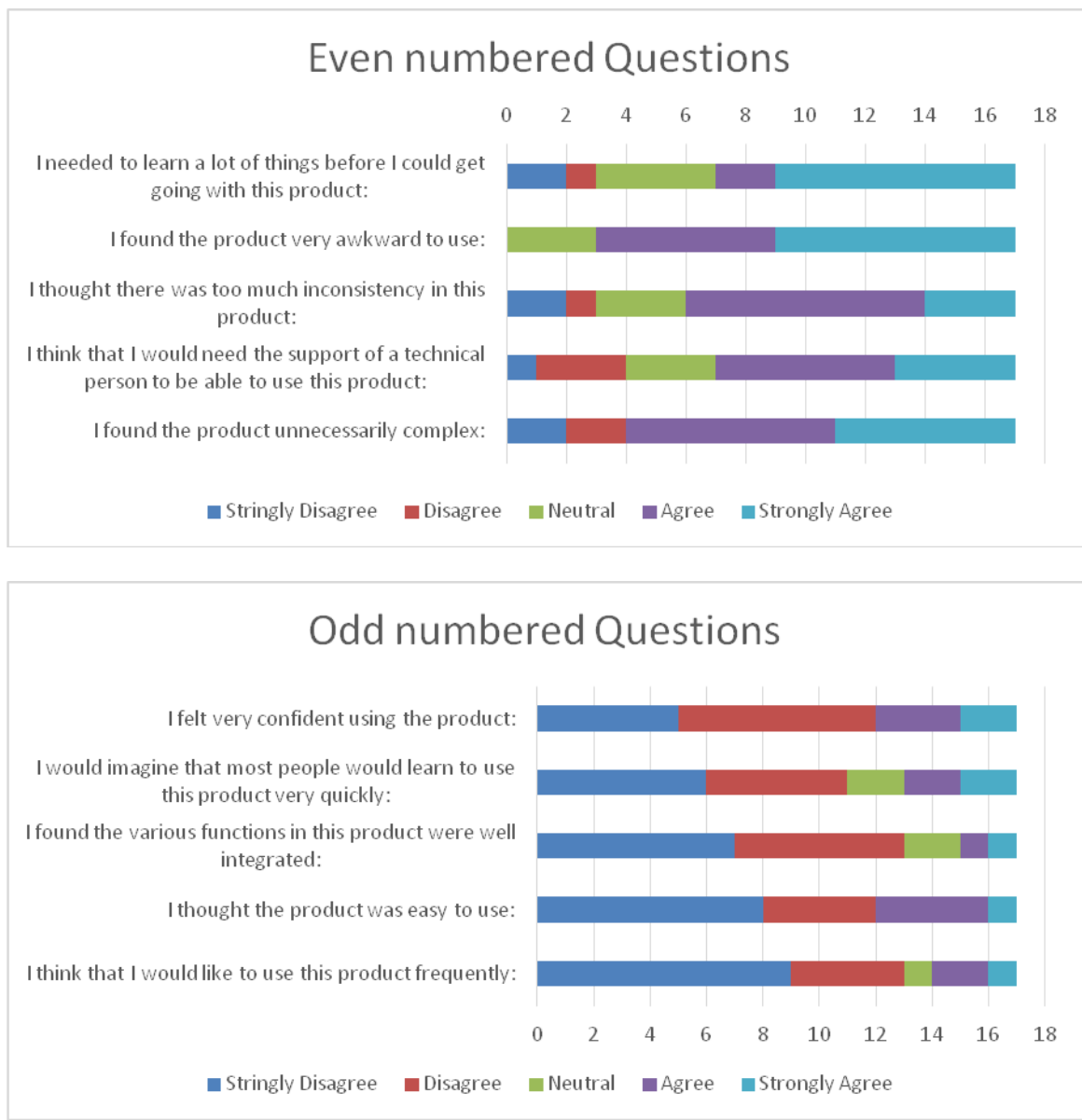


Figure 10. SUS Questionnaire Responses for MM Module

Human Capital Management (Total number of respondents: 23)

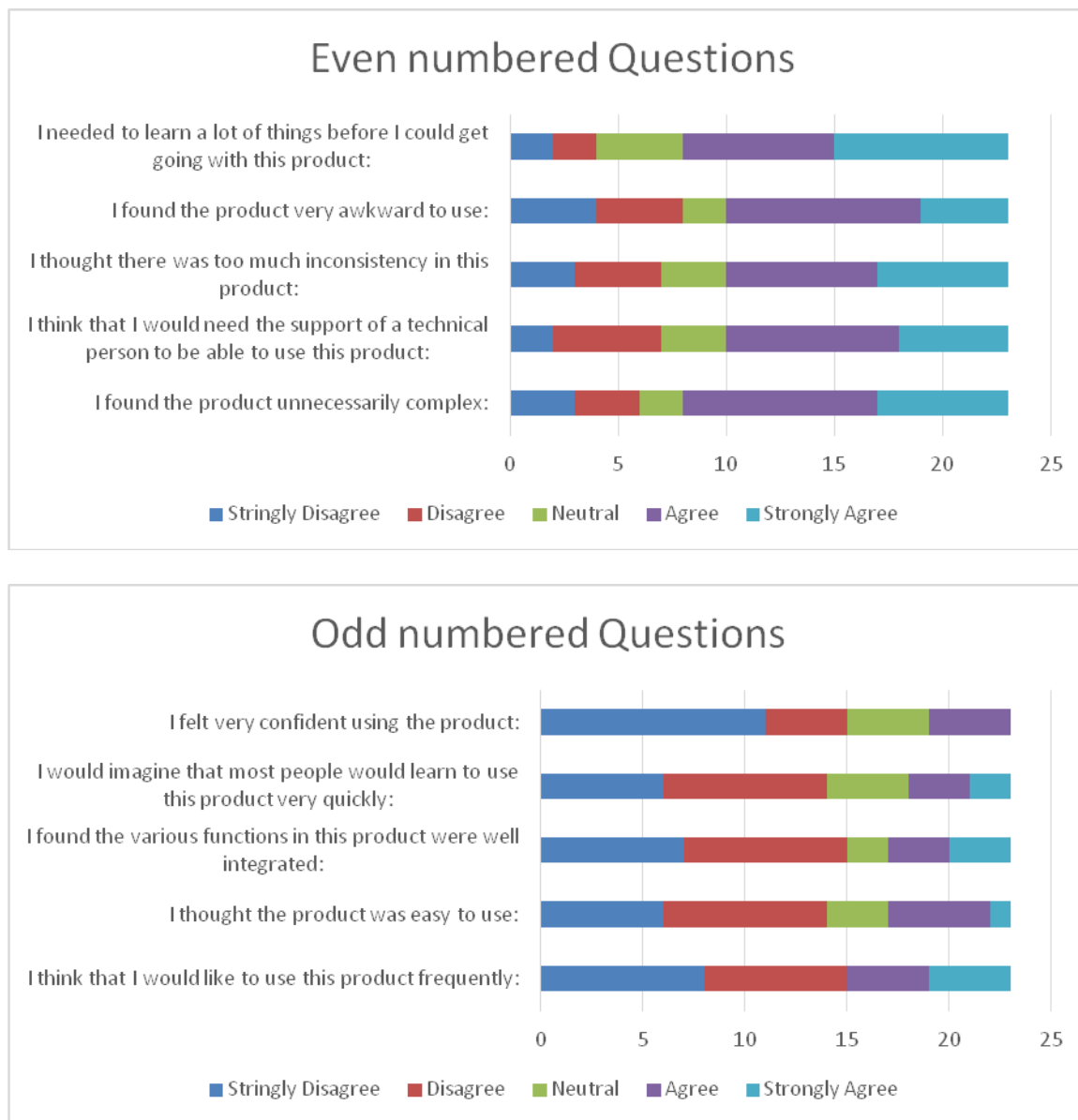


Figure 11. SUS Questionnaire Responses for HCM Module

Sales and Distribution (Total number of respondents: 21)

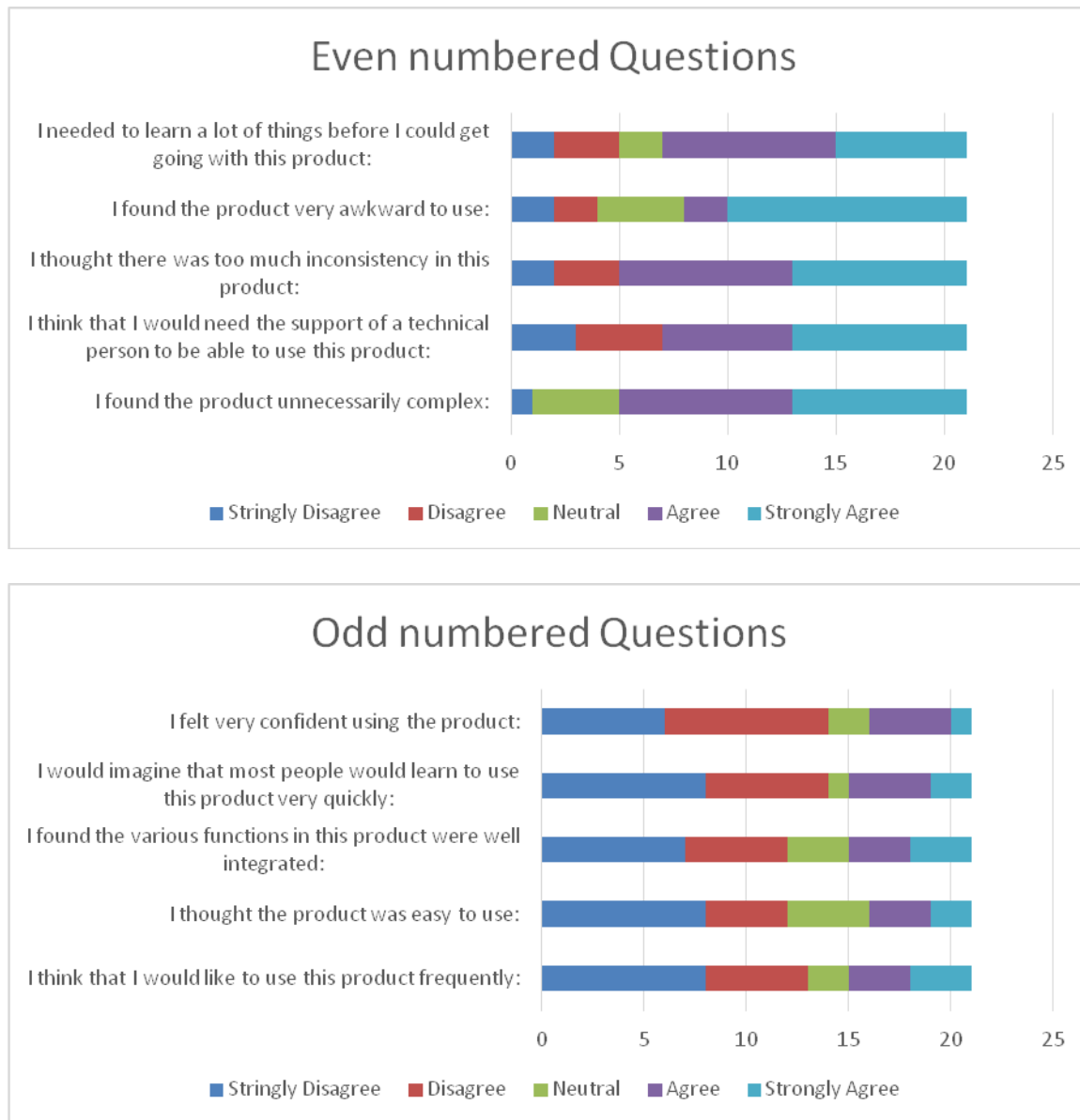


Figure 12. SUS Questionnaire Responses for SD Module

Finance and Controlling (Total number of respondents: 22)

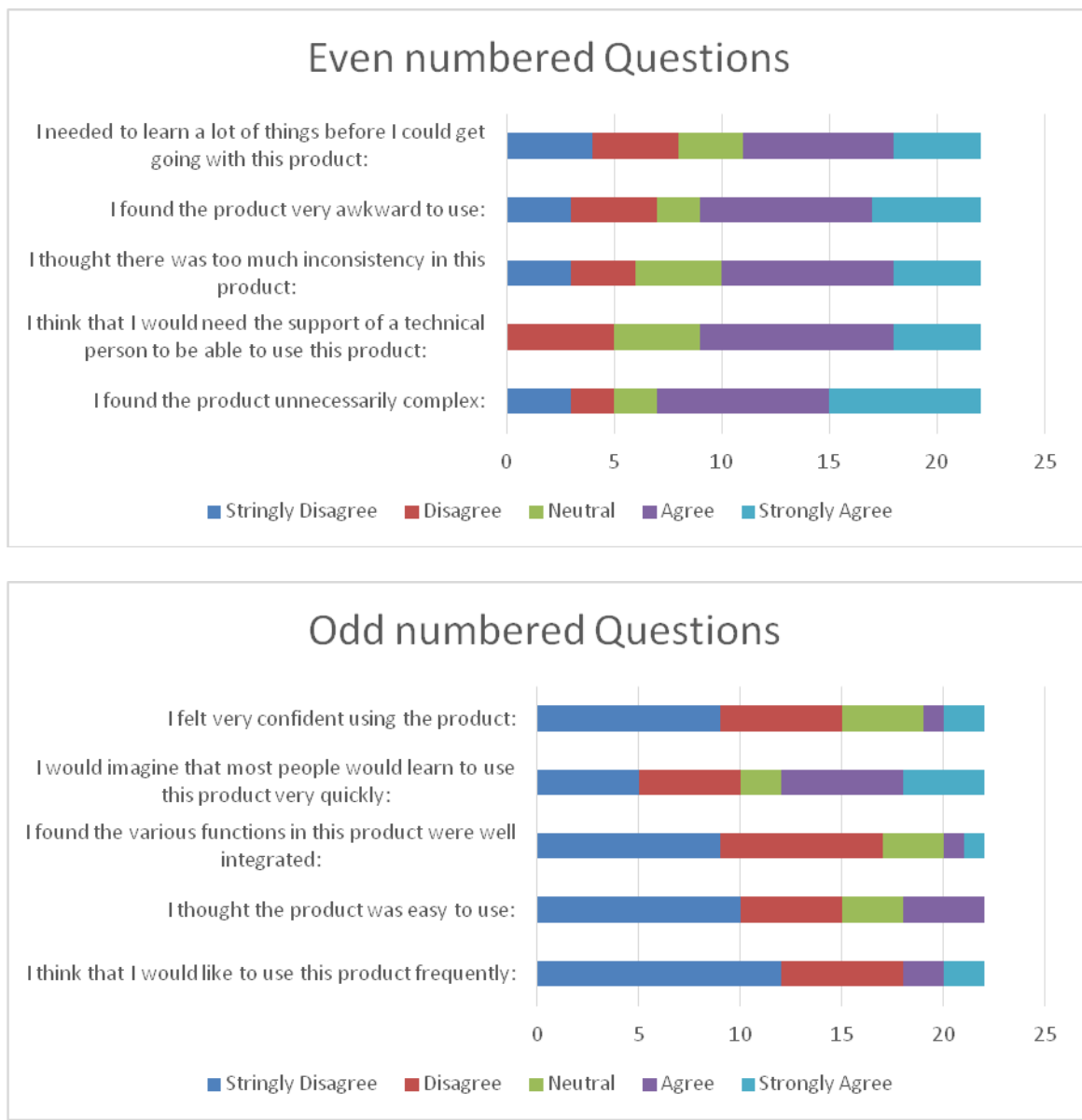


Figure 13. SUS Questionnaire Responses for FI Module

Supply Chain Management (Total number of respondents: 20)

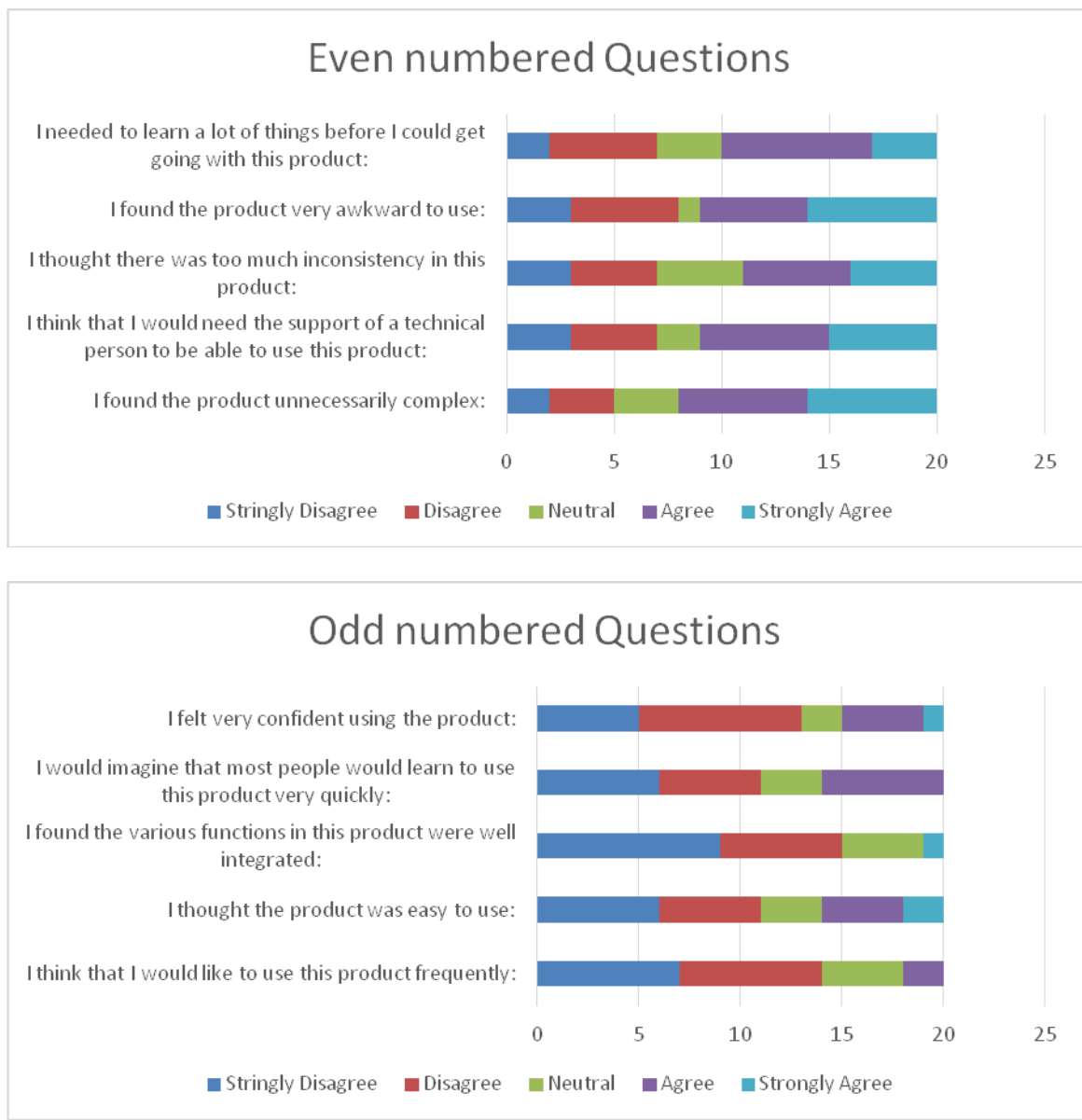


Figure 14. SUS Questionnaire Responses for SCM Module

SAP Fiori logon screens for the HCM module are shown below.

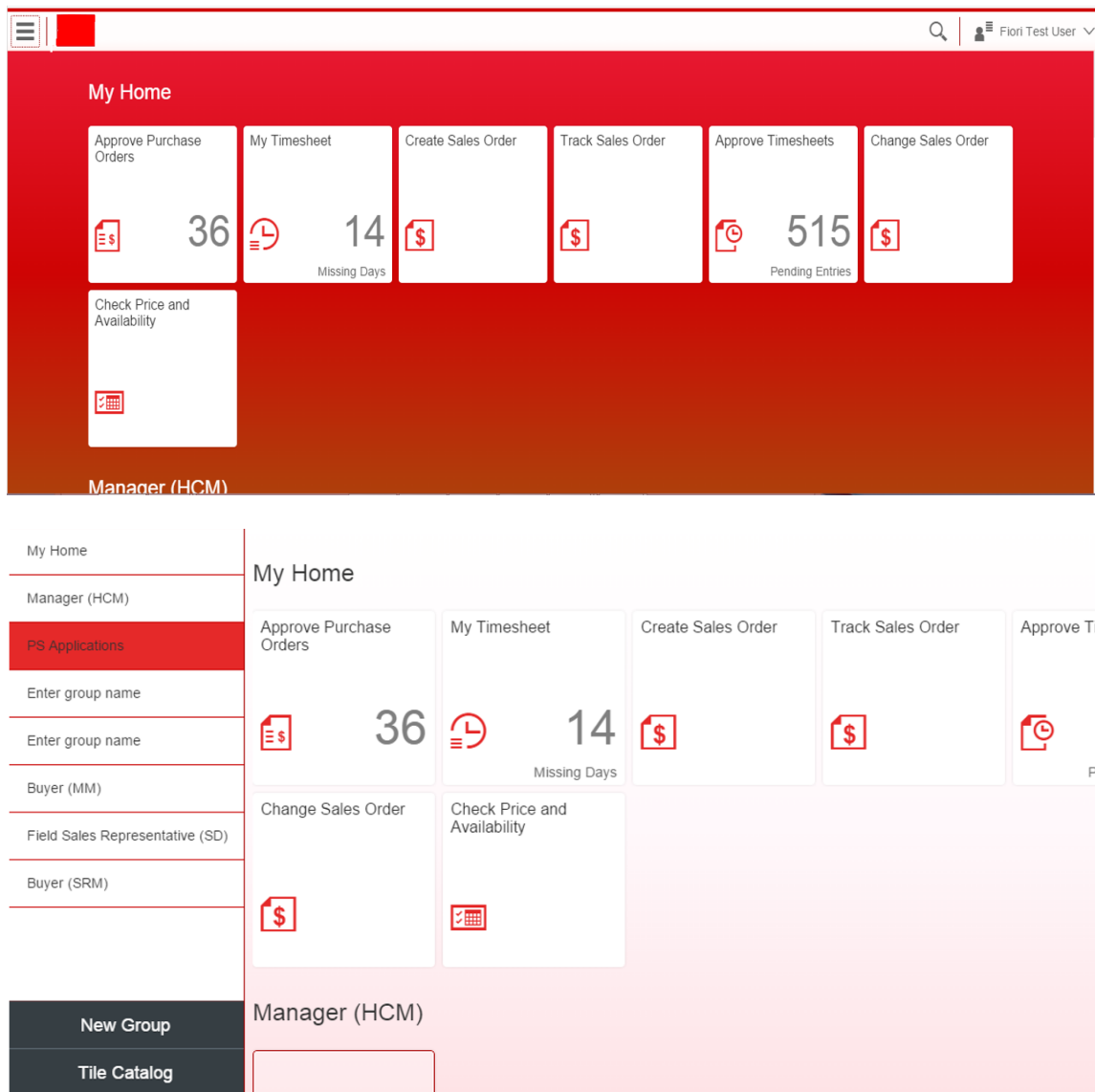


Figure 15. SAP Fiori HCM Application Home Screen

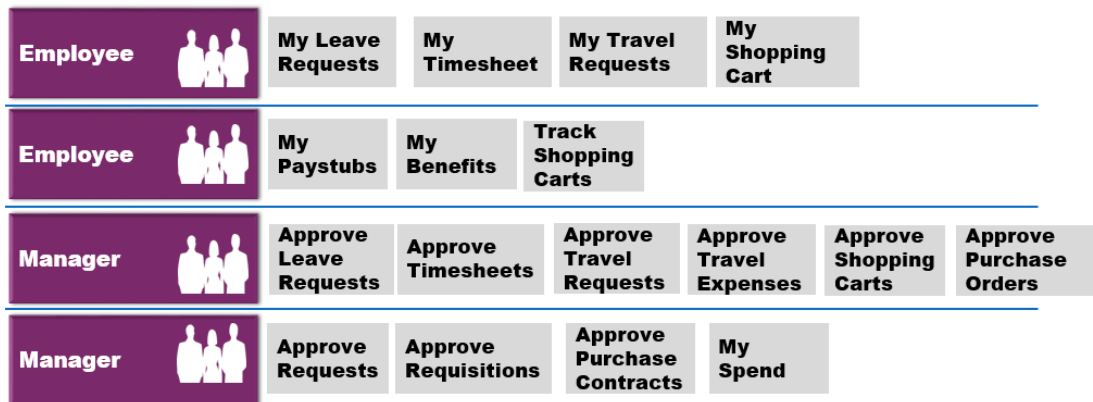


Figure 16. Role Based Apps in SAP Fiori HCM

Data Analysis

The SUS index for the application was 34.466 based on the responses from 103 users.

Table 4 shows scores with respect to module.

Table 4

SUS Score by Module

| Module | Respondents | Sum of Score | Score |
|------------|-------------|--------------|--------------------|
| SAP MM | 17 | 510 | 30 |
| SAP HCM | 23 | 840 | 36.521 |
| SAP SD | 21 | 687.5 | 32.738 |
| SAP FI, CO | 22 | 770 | 35 |
| SAP SCM | 20 | 742.5 | 37.125 |
| | Total = 103 | Total = 3550 | SUS Score = 34.466 |

Based on over 500 studies, the ranking for SUS score based on percentile is shown in Figure 17 (Lewis & Sauro, 2009). According to that graph, SAP ERP application score at Gluco stands at C grade.

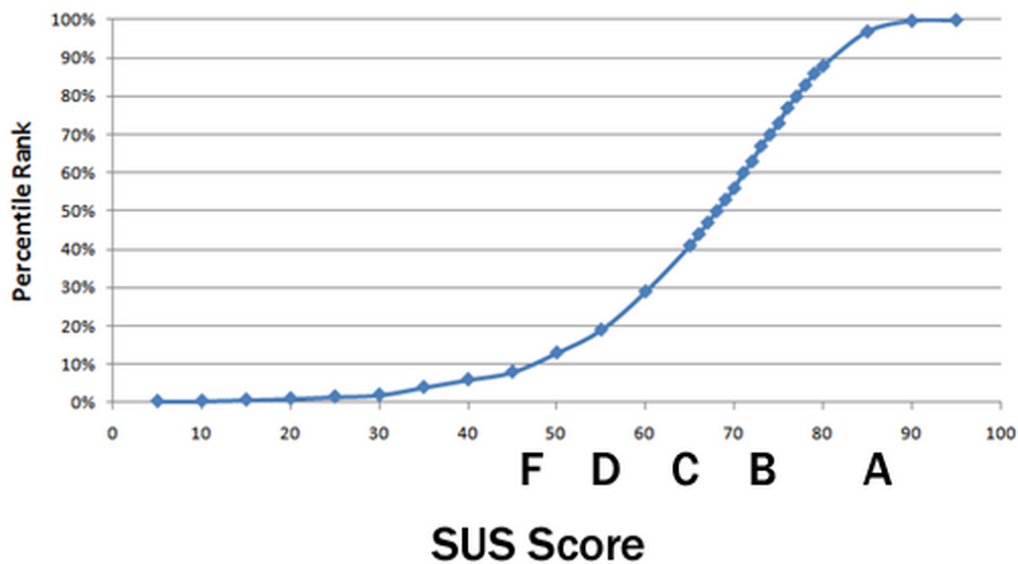


Figure 17. SUS Score by Percentile Rank

SAP Fiori App:

Table 5 lists various transaction codes which are used in the traditional SAP HCM application. Employees should memorize those transaction codes to get their daily routine job done. With Fiori apps, this hassle can be eliminated. Role based apps are available and there is no need to memorize and transaction codes. Simple demo showing the amount of time saving is shown below.

Table 5

Transaction Codes in SAP

| Transaction Code | Task Accomplished |
|-------------------------|---|
| CATS_APPR_LITE | Approve Working Times Cross Application |
| CATS | Cats: Cross |
| CAT2 | Time Sheet: Maintain Times Cross Application |
| SWFVISU | Workflow Visualization Metadata Basis |
| CATW | Record Working Time Cross Application |
| CATA | Transfer To Target Components Personnel Time Management |
| LPD_CUST | Launchpad Customizing Basis |
| CAT5 | Data Transfer Cats |
| CAT6 | Transfer External |
| CAC1 | Time Sheet: Maintain Profiles Cross Application |
| CAC2 | Time Sheet: Field Selection Cross Application |
| SWL1 | Settings For Dynamic Columns Basis |
| CATS_DA | Display Working Times Cross Application |
| CMP2 | Workforce Planning: Project View Project Systems |
| WS04200009 | Leave Request Personnel Time Management |
| CORT | Display Process Order Confirmation Pp |
| CADO | Time Sheet: Display Data Cross Application |
| PPOSW | Display Org. And Staffing (WF) Basis |
| CMP3 | Workforce Planning: Work Center View Project Systems |
| BBPSC07 | Manager Inbox Srm |
| SWWL_TOPLEVEL | Delete Top Level Work Item Basis |
| SWWH | Wim: Delete Work Item History Basis |
| CAPS | Approve Times: Master Data Personnel Time Management |

Traditional GUI vs. SAP Fiori:

A routine activity conducted by managers was executed in both traditional GUI and SAP Fiori application. Advantages of SAP Fiori app were listed compared to GUI.

Activity:

Verify that all the employees have entered their hours and then generate a report to get the cumulative number of hours for all employees reporting to that manager.

Traditional GUI:

A total of nine screen changes were required to get this activity done and four codes (one function module name, 1 table name, 2 transaction codes) needs to be memorized. Figures 18 and 19 illustrate various screens from the traditional GUI. Sequence is as follows:

1. To check the hours entered by employees, list was seen using the function module Z_CATS_PAYROLL_HOURS. To reach this screen SE37 t-code was used.

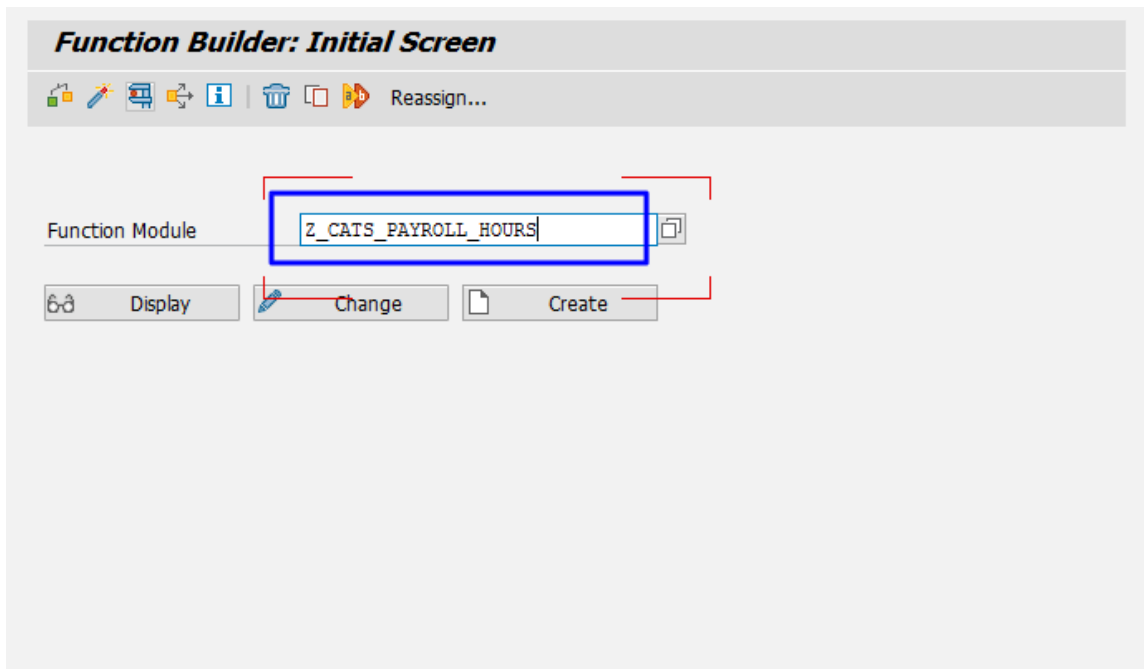


Figure 18. SAP Traditional GUI

2. Then the hours should be checked manually and verified that everyone entered their hours.
3. Then the list of employees and their hours was extracted by going to the table ET_CATSHOURS. To reach the table SE16 t-code was used.

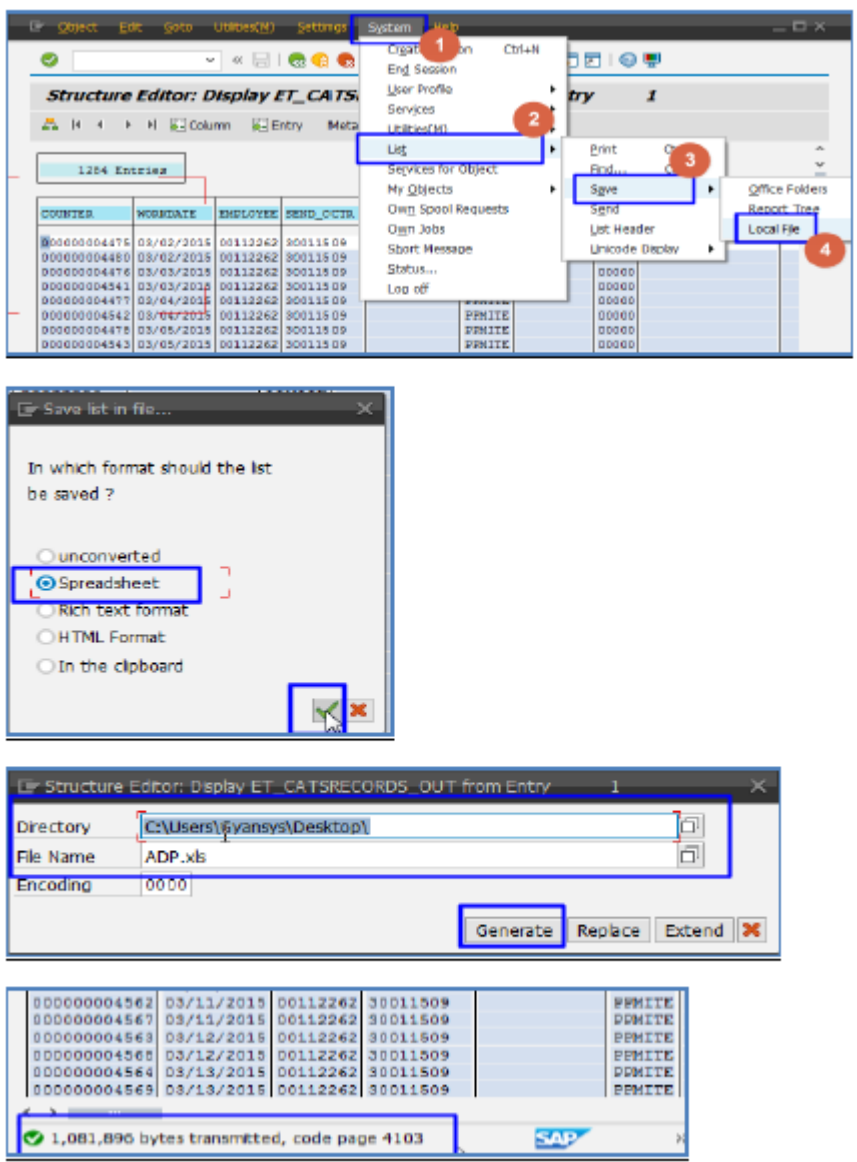


Figure 19. Steps to Download Employees List Using Old SAP GUI

4. Now the downloaded file has to be sent over email to the required person or team.

SAP Fiori App:

1. Go to the home screen and the missing hours will be displayed in the home screen. If any hours are missing, sending a reminder email is just one click away. Figure 20 shows the Missing hours tab in the app.

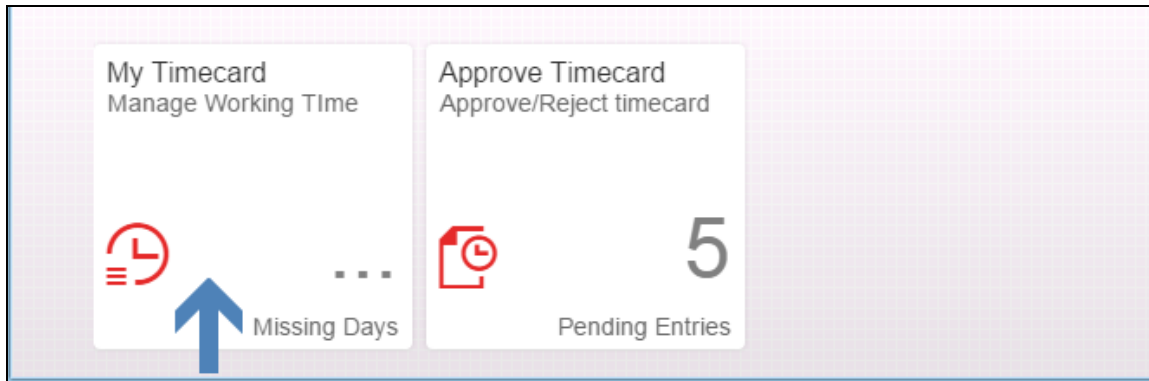


Figure 20. SAP Fiori Home Page

2. Display the list of hours by selecting the “Employees List” tab.
3. Then select “Download” option at the bottom of screen.

It takes less than 30 sec in Fiori compared to over 150 Sec in GUI. Moreover, there is no need to remember any codes and change multiple screens.

Summary

This chapter covered the presentation of the SUS scores for different modules and the total score for the application. SAP Fiori login screens and various option in the App are also shown.

Chapter V

RESULTS, CONCLUSION, AND RECOMMENDATIONS

Introduction

This chapter will focus on the project results that are obtained after the implementation of the project, conclusion of the project and finally the recommendations that are considered during the implementation of the project.

Results

User satisfaction levels on usage of SAP ERP application were studied. The SUS index stands at 34.466 which is way below the global standard. The growing need for simplifying the usage of software applications and in particular the ERP suite was understood. SAP Fiori was implemented successfully and it was successful in improving the user experience of application.

End User Feedback

Every App in SAP Fiori has an option to report feedback. The feedback option in HCM app is shown in Figure 21. This feedback data is sent to both SAP Inc. and the organization which is using the application. This feedback helps SAP to design better apps which can be used by organizations with less amount of customization. On the other hand, it is very valuable to the organization to understand the real need of their end users. This HCM application received an average of 4.4 rating from 956 users. Feedback data included various suggestions and needs from end users which will be analyzed by the business analyst team.

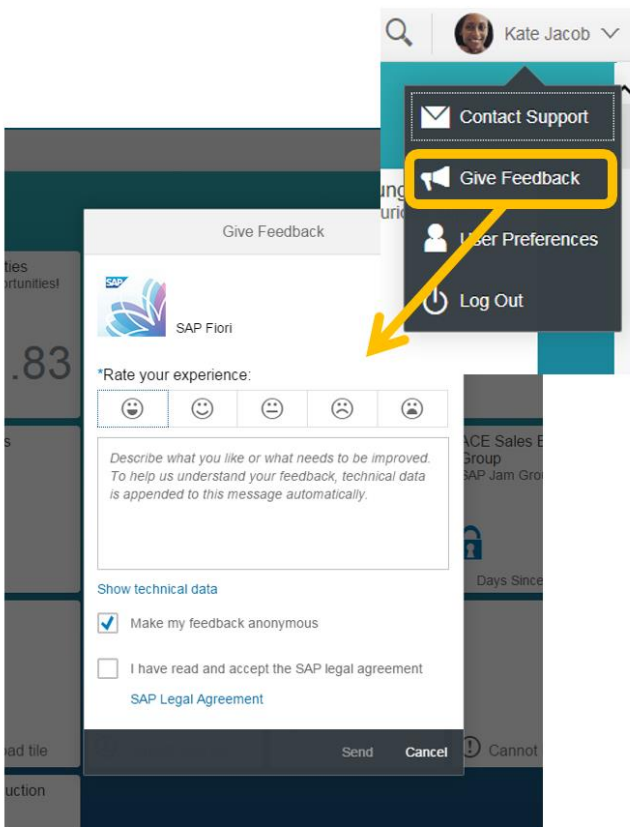


Figure 21. SAP Fiori Feedback Option

Project Questions

1. *What is the SAP ERP application usability index/score at Gluco Inc.?*

SUS score for SAP ERP application is 34.466 out of 100. Scores by modules stand at 30, 36.521, 32.738, 35 and 37.125 for MM, HCM, SD, FI and SCM respectively.

2. *How can SAP Fiori implementation improve the usability of application?*

SAP Fiori apps are role based, responsive, simple, coherent and delightful. All those properties of the application help improve the user experience and usability of the ERP application.

3. *What is the customer feedback on SAP Fiori HCM Apps?*

Customer feedback is collected using the standard feedback option in Fiori apps.

Overall rating for all apps stand at 4.4 from 956 users.

Conclusion

This study was all about the user acceptance of the SAP ERP application and the need for improving it. Although there were many ways to improve the usability of the application, they are time consuming and expensive to implement. SAP Fiori was one of the feasible options to improve the user experience. It was fairly simple and is also quicker to implement.

Recommendations

Although the implementation was successful and is being accepted by end users very well, there is scope for further customization of the app. For the implementation of apps in SD and MM modules, a detailed study should be conducted to understand the various needs of the end users and the navigation of the application should be better.

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